Matrox Monarch EDGE Technical Specifications

Connectivity	

Input connections	1x 12G SDI per SMPTE ST 2082
	3x 3G SDI per SMPTE ST 425 (Level A mapping only)
	UHD support using 4x SDI per SMPTE ST 425-5
	  -Square division
	  -2x sample interleave[1]
	2x SFP 28 network ports (up to 25 Gbps) [1]
	Capture up to four independent 3 Gbps video streams or one 12 Gbps (4Kp60) stream encapsulated per SMPTE ST 2110-10, -20, and -21.
	Seamless protection (redundancy) according to SMPTE ST 2022-7.

Output connections	1x 12G SDI per SMPTE ST 2082
	3x 3G SDI per SMPTE ST 425 (Level A mapping only)
	UHD support using 12G SDI per SMPTE ST 2082
	  -Square division
	  -2x sample interleave[1]
	2x SFP 28 network ports (up to 25 Gbps)[1]
	Output up to four independent 3 Gbps video streams or one 12 Gbps (4Kp60) stream encapsulated per SMPTE ST 2110-10, -20, and -21.
	Seamless protection (redundancy) according to SMPTE ST 2022-7.

Resolutions	2160p at 50, 59.94, 60 fps 1080p at 25[1], 29.97[1], 30[1], 50, 59.94, 60 fps 1080i at 25, 29.97, 30[1] fps 720p at 50, 59.94, 60 fps
Configurable genlock	Bi-level genlock output (encoder) Bi-level or tri-level genlock input (decoder)
Digital audio	8x channels of embedded audio support per SDI. Two channels per input supported with first release[1]
Analog audio[2]	2x channels of balanced analog audio input via XLR connector 2x channels of balanced analog audio output via XLR connector 1 channel of unbalanced stereo audio output via 1/8" TRS connector All sampled at 48 kHz
Audio processing	Embedded or analog audio channels can be compressed as a stereo pair or processed as PCM[1] (uncompressed audio) Multi-channel audio support as separate audio pairs[1]
Control and management	
Access	Monarch EDGE Control Hub dedicated Windows® application RESTful HTTP API[3]
Physical	On-device buttons and screen for basic set up and monitoring operations
Monitoring output	1x DisplayPort (HD output only)
Compression	
Codecs	Video: H.264/MPEG-4 part 10 (AVC) Audio: AAC-HE and AAC-LC
Bitrate per stream	Video: Up to 120 Mbps Audio: From 32 to 256 Kbps
Chroma sub-sampling	4:2:2 (8-bit and 10-bit), 4:2:0 (8-bit and 10-bit) – MDG4/E10/I 4:2:0 (8-bit only) – MDG4/E8/I 4:2:2 (8-bit and 10-bit), 4:2:0 (8-bit and 10-bit) – MDG4/D/I
Encoding controls	Up to 5.2 level support GOP size and structure Variable and constant bit rate support Average max/min data rate controls Encoding frame rates offered independent of input frame rates
Decoding controls	Scaling of HD/UHD resolutions Frame rate conversions
Profile	Up to High 4:2:2 profile (Hi422P)
Latency	Encode latency as low as 100ms glass-to-glass (network transfers not included in value)
Encode density/workflow examples	One (1) 3840 x 2160p @60 fps (encoded as 4:2:0 or 4:2:2) plus one 1080p

	(4:2:0 8 bit) proxy stream OR Four (4) 1920 x 1080 @60 fps (encoded as 4:2:0 or 4:2:2) plus four 720p30 (4:2:0) proxy stream *There are a number of additional encoding profiles that can be generated per input.*

VANC ancillary data processing (SDI and IP)[1]

Closed captioning (CC) embedded in VANC processing as CEA-608/708
Vertical interval timecode (RP-188)
HDR and colorimetry metadata

Tally

8x tally signals (sent to cameras - encoder)
8x tally signals (sent from switcher - decoder)
Tally ports available via a 15-pin D-SUB connector

Streaming protocols

MPEG-2 TS over UDP
RTP/RTSP
Native RTP[1] (unicast or multicast)
SRT
RTMP

Network

2x RJ45, 100/1000BASE-T Ethernet
2x MSA-compatible SFP28 cage supporting 10 GbE and 25 GbE modules[1]

Physical and power

Product dimensions (length x width x height)	8.53x7.45x1.68 in (21.7x18.9x4.3 cm) Rack-mountable; two Monarch EDGE appliances can fit in 1 RU space
Product weight	3.65 lbs (1,660 g)
Operating conditions	32 to 104 deg. F (0 to 40 deg. C), 20 to 80% relative humidity (non-condensing)
Power	Line voltage: 12 volts Total power consumption: 45 watts [avg.] Connector: DIN 4
Power supply	Line voltage: 100-240 VAC Frequency: 50-60 Hz Input: external AC/DC adapter - IEC320-C14 DIN4 locking power connector
Regulatory	EMI: FCC Class A, CE Mark Class A, ACMA C-Tick Mark, VCCI Power-supply safety: UL/CUL(UL60950-1), TUV-GS(EN60950-1), T-LICENSE(BS EN60950-1), CCC(GB4943.1-2011), PSE(J60950), SAA(AS/NZS60950-1), KC-MARK(K60950), S-MARK(IEC60950-1) RoHS directive 2002/95/EC
Warranty	Two-year limited warranty with free online or telephone support

Ordering information

MDG4/E10/I	Monarch EDGE appliance with 4:2:0 8-bit, 4:2:0 10-bit, and 4:2:2 10-bit encoding Includes IEC-C14 power cord (US, UK, AUS, EUR)
MDG4/E8/I	Monarch EDGE appliance with 4:2:0 8-bit encoding Includes IEC-C14 power cord (US, UK, AUS, EUR)
MRCH/RACK/KIT	Monarch Rack Mount Kit. Can fit up to two Monarch EDGE units in a 1RU space
PWR/SUP/MDG	Monarch EDGE power supply unit. Does not include IEC-C14 power cord. These cables must be sourced locally.
MDG/AUD/CBL	Monarch EDGE break out audio cable. Provides two input channels and two output channels. DB15 to XLR I/O.

[1]Enabled with future firmware update

[2]Available via optional audio cable
[3]Contact Matrox representative for availability

Matrox Monarch EDGE Encoder Decoder Connections

1. USB 1
2. USB 2
3. Power LED
4. Reset Button
5. LCD Panel
6. Navigation and Configuration Buttons

7. Analog Audio Output
8. Analog Audio Input
9. Genlock
10. Balance Audio
11. Tally Signals
12. 3G SDI Input
13. 12G SDI Input

14. *SFP28 Ports
15. Display Port
16. USB 3
17. Gigabit Ethernet Port
18. Power Connection
19. Power Switch

*SFP module supplied by third party